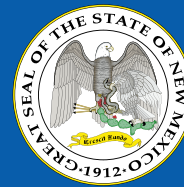




Environmental Health Activities in New Mexico



NCEH in Partnership with New Mexico

The National Center for Environmental Health (NCEH) is part of the Centers for Disease Control and Prevention (CDC). NCEH's work focuses on three program areas: identifying environmental hazards, measuring exposure to environmental chemicals, and preventing health effects that result from environmental hazards. NCEH has approximately 450 employees and a budget for 2004 of approximately \$189 million; its mission is to promote health and quality of life by preventing or controlling diseases and deaths that result from interactions between people and their environment.

NCEH and partners in **New Mexico** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **\$6.7 million** in direct funds and services to New Mexico for various projects. These projects include activities related to addressing asthma, developing biomonitoring plans, and preventing childhood lead poisoning. In addition, New Mexico benefits from national-level prevention and response activities conducted by NCEH or NCEH-funded partners.

Identifying Environmental Hazards

NCEH identifies, investigates, and tracks environmental hazards and their effects on people's health. Following are examples of such activities that NCEH conducted or supported in **New Mexico**.

Asthma

- **Addressing Asthma from a Public Health Perspective**—NCEH funds the **New Mexico Department of Health (NMDOH)** to develop asthma-control plans that include disease tracking, science-based interventions, and statewide partnerships to reduce the burden of asthma in the home, school, and occupational environments. NCEH also funds New Mexico to implement its statewide comprehensive asthma control plan. Funding began in fiscal year 2000

and ends in fiscal year 2006.

Radiation Studies

- **Los Alamos Historical Document Retrieval and Assessment (LAHDRA)**

Project—For the last 5 years, NCEH has been helping the **Los Alamos National Laboratory (LANL)** identify historical off-site releases of radionuclides and toxic chemicals that occurred during the last 50 years. Funding began in fiscal year 2004 and ends in fiscal year 2008.

Environmental Public Health Tracking

- **Planning and Capacity-Building Activities**—NCEH is funding **NMDOH** to develop a statewide environmental public health tracking system (EPHTS) that is (1) capable of linking health effects data with human exposure and environmental hazards data and (2) standards-based and capable of integration with data from other states and other national data sets. NMDOH conducted an inventory of current and potential data sets and is evaluating existing data sets on the basis of CDC guidelines for surveillance evaluation. NMDOH is also building an infrastructure to support a statewide EPHTS and developing and prioritizing state-specific environmental public health indicators for tracking (24 categories of indicators have been identified as appropriate for New Mexico).

NMDOH collaborates with several agencies on this project, including the **New Mexico Environmental Department**, Indian Health Service, **City of Albuquerque Environmental Health Department**, and **Bernalillo County Environmental Health Department**. Funding began in fiscal year 2002 and ends in fiscal year 2005.

- **Data Linkage Demonstration Project**—With support from NCEH, **NMDOH** is conducting

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two projects to link existing health effects surveillance data with exposure data. The first project links data on arsenic in drinking water with cancer data from the New Mexico Tumor Registry to examine cancer incidence rates according to arsenic levels in drinking water across the state. The second project demonstrates a general process for linking environmental monitoring data and health surveillance data by linking data on air quality, respiratory diseases tracked by the Hospital Inpatient Discharge Database, and asthma data from the statewide asthma surveillance system. This project also evaluates the utility of linked data for timely assessment of changing environmental exposures and health outcomes and recommends adjustments to existing systems of data collection and analysis that would improve their performance.

During fiscal year 2003, New Mexico completed population estimates for air and cancer denominators, bridged data variables to appropriate census definitions, geocoded cancer cases, mapped the concentration of municipal wells plotted to census tract, and established spatial units for asthma data through modeling and interpretation.

Funding began in fiscal year 2003 and ends in fiscal year 2006.

Measuring Exposure to Environmental Chemicals

NCEH measures environmental chemicals in people to determine how to protect people and improve their health. Following are examples of such activities that NCEH conducted or supported in New Mexico.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2004, CDC provided more than \$1.3 million to **New Mexico** to help expand chemical laboratory capacity to prepare for and respond to chemical-terrorism incidents and other chemical emergencies. This expansion will allow full participation of chemical-terrorism response laboratories in the Laboratory Response Network.

- **Biomonitoring Grants**—In fiscal years 2001 and 2002, NCEH awarded planning grants to the Rocky Mountain Biomonitoring Consortium, which included **New Mexico**, Arizona, Colorado, Montana, Utah, and Wyoming, to develop a plan for implementing a biomonitoring program. In this way, the states could make decisions about which environmental chemicals within its borders were of health concern and could make plans for measuring levels of those chemicals in the states' populations. In 2003, the consortium also received an NCEH grant to implement the biomonitoring program.
- **Public Health Laboratory Sciences Training Program for Hispanic and Native American Students**—Since 2001, NCEH has awarded annual funding to **New Mexico State University** to establish and manage a comprehensive program to recruit, select, compensate, and mentor American Indian or Hispanic students in the sciences for their participation in a public health laboratory sciences training program. The program increases the educational and career opportunities for American Indian and Hispanic students who major in the biomedical science disciplines (i.e., biochemistry, chemistry, and biologic sciences). Students are provided supplemental instruction to the science curricula in an effort to reduce attrition of minority students in entry-level chemistry and biology courses. The program also instructs students in methods of chemical and biologic analyses, chemical and biologic laboratory safety, analytic chemistry instrumentation, and laboratory quality control.

Studies/Collaborations

- **Assessment of Urinary Metals Resulting from Exposure to a Fire in Los Alamos**—In May 2000, a large forest fire occurred in and around **LANL**. At **NMDOH**'s request, CDC conducted an epidemiologic investigation to determine exposure to heavy metals. The NCEH laboratory evaluated urine samples from 241 firefighters, National Guardsmen, postal workers, police officers, and health department workers for the presence of 16 metals. Elevated levels of eight

metals were found in study participants. Fifty percent of participants had elevated levels of nickel, and 75% of participants with elevated nickel were exposed to the forest fire. Although several metals tested for in this survey were above reference levels in at least some people, only nickel remained significantly associated with exposure to smoke from the fire. These results raise the possibility of nickel as a biomarker for exposure to smoke generated by burning vegetation and suggest directions for further research into forest fire and smoke biomarkers.

- **Analysis of Unsatisfactory Guthrie Blood Spot Samples**—All babies born in the United States are screened for as few as 4 and as many as 35 genetic and metabolic diseases and disorders within a few days of birth. The screening process begins with the collection of a few drops of blood from the infant's heel onto a filter paper card. This collection is usually done before discharge from the hospital, within 24 to 48 hours after birth. When the specimen has dried, it is sent to the screening laboratory for testing. Newborn-screening specimens that are collected incorrectly and that may be unsuitable for testing are declared unsatisfactory.

The NCEH laboratory assessed the impact of delays caused by unsatisfactory specimens on the newborn screening process. The laboratory collected data from newborn screening programs in **New Mexico** and Georgia. In both states, NCEH assessed the amount of time required for each step of the newborn-screening process and estimated the time required for extra steps needed for repeat testing when initial collection results in an unsatisfactory specimen. Using these data, NCEH calculated the age at which babies with satisfactory and unsatisfactory specimens got screening results from valid specimens. The impact of the state screening protocols on the delays caused by unsatisfactory specimens was also analyzed. Published results are expected in 2005 and should help states evaluate their screening protocols.

- **Los Alamos National Laboratory**—The NCEH Laboratory has signed an interagency

agreement with **LANL**. Through this agreement, LANL will create compounds used by NCEH to develop methods to measure chemical agents and radionuclides in human samples, provide consultative services on optimal methods to measure chemical agents and toxins (e.g., botulinum toxin), and develop methods for determining background levels of radionuclides in urine.

Services

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with **New Mexico's** public health laboratory to prepare state laboratory scientists to measure chemical-terrorism agents or their metabolites in people's blood or urine. NCEH is transferring analytic methods for measuring chemical-terrorism agents (including cyanide-based compounds and other chemicals) to New Mexico. In addition, NCEH instituted a proficiency-testing program to measure the comparability of the state's analytic results with results from the NCEH laboratory.
- **Newborn Screening Quality Assurance Program**—NCEH provides proficiency-testing services and dried-blood-spot, quality-control materials to monitor and help assure the quality of screening program operations for newborns in **New Mexico**. The importance of accurate screening tests for genetic metabolic diseases cannot be overestimated. Testing of blood spots collected from newborns is mandated by law in almost every state to promote early intervention that can prevent mental retardation, severe illness, and premature death.
- **Environmental Health Trainee and Fellowship Program**—The Environmental Health Traineeship and Fellowship Program provides state public health laboratories with the opportunity to initiate or enhance environmental health testing capabilities. In December 2004, NCEH will train staff from **NMDOH** in using the laboratory method for measuring speciated arsenic in urine. Arsenic is a naturally occurring element widely distributed in the earth's crust. Several forms of arsenic exist in the environment. Inorganic arsenic compounds occur naturally in soil and in many

kinds of rock. Inorganic arsenic compounds are used to preserve wood and in the past were used as insecticides or weed killers. Arsenic that gets into animals and plants combines with carbon and hydrogen to form organic arsenic compounds. These compounds are much less toxic than inorganic arsenic compounds. Arsenic can build up in fish and shellfish, but the arsenic in fish is mostly in the less harmful organic form. Organic arsenic compounds are still used as pesticides, primarily on cotton plants. By using the speciated arsenic method, laboratorians will be able to assess arsenic exposure in people and determine whether the exposure came from a drinking water or a dietary source.

Preventing Health Effects That Result from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Following are examples of such activities that NCEH conducted or supported in **New Mexico**.

■ **Childhood Lead Poisoning Prevention**

Program—The **New Mexico Childhood Lead Poisoning Prevention Program (NM CLPPP)** received NCEH funding from 1993 to June 2000. In 2001, the program screened 2,695 children under 6 years of age for lead poisoning; 39 children had elevated blood lead levels.

As a program previously funded by NCEH, NM CLPPP established the following mechanisms to ensure proper monitoring and tracking of childhood lead poisoning cases: screening guidelines for the state, a law requiring all blood lead levels be reported to the state, and a comprehensive surveillance system that tracks childhood lead poisoning cases and monitors case management activities.

- **Environmental Health Resources**—In September 2004, NCEH finalized a 3-year project with the **NMDOH Epidemiology Unit** to develop a sustainable network of environmental health professionals and provide support for sharing or linking of environmental health data. The project's other goals are to develop and implement tools for community assessments, and enhance an inventory of environmental health resources throughout the state. NCEH funding helped NMDOH complete

several assessment studies on air quality, provide minigrants and technical assistance to health councils in New Mexico, develop training material for environmental health issues, and create an online environmental health resource directory.

- **Impact of On-Site Wastewater Disposal Systems**—Through the Association of Schools of Public Health, NCEH funds the **University of New Mexico** to conduct a project titled the **Impact of On-site Wastewater Disposal Systems**. Funding began in fiscal year 2004 and ends in fiscal year 2006.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track environmental hazards that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues. These issues include air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposures), biomonitoring to determine whether selected chemicals in the environment get into people and to what degree, childhood lead poisoning, emergency preparedness for and response to chemicals and radiation, environmental health services, environmental public health tracking, international emergency and refugee health, laboratory sciences as applied to environmental health, radiation studies, safe disposal of chemical weapons, specific health studies, vessel sanitation, and veterans' health.

For more information about NCEH programs, activities, and publications as well as other resources, contact the NCEH Health Line toll-free at 1-888-232-6789, e-mail NCEHinfo@cdc.gov, or visit the NCEH Web site at www.cdc.gov/nceh.